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ARGONNE NATIONAL LABORATORY

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Dear Goeff,

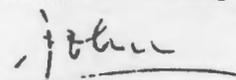
My fascination with the urinary excretion (and other) data from 40-009 and 40-012 also continues. In answer to your question, I can only say that at ages 77 and 72 respectively, one would expect there to be osteoporosis to some extent, and that it would be greater in the female (40-009) than in the male. In addition, I believe that there is evidence of clinical osteoporosis in case 40-009, i.e., it is considerably greater than the average for her age, but I have not been able to confirm this. You may remember that I mentioned at Seattle that the excretion rates of the three subjects (these two plus 40-003 or Cal-3) decreased in the same order as their expected degrees of osteoporosis.

Tony James' findings seem to be slightly different from Pat Durbin's with americium, the excretion rate of which seemed to show a slow but steady increase from about 400 days of age (290 days post injection) to 850 days of age. She also observed a decrease in ash weight of some bones (tibiae, lumbar vertebrae) over about the same time range, and in a recent phone conversation she described this as evidence of osteoporosis.

The importance of our results for 40-009 and 40-012 notwithstanding, I do not think they tell us that we cannot use Langham's equations for the case of, say, a 50-year old man who acquired his plutonium at age 25, since osteoporosis has hardly got underway at age 50. The urinary excretion rate of plutonium by case 40-003 was not in violent disagreement (about a factor of two lower) with Langham's prediction. This case was 62 at the time of our study and he is black; negro males have very little osteoporosis.

I hope this helps, rather than confuses, the issue!

Yours sincerely,


J. Rundo

Center for Human Radiobiology

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